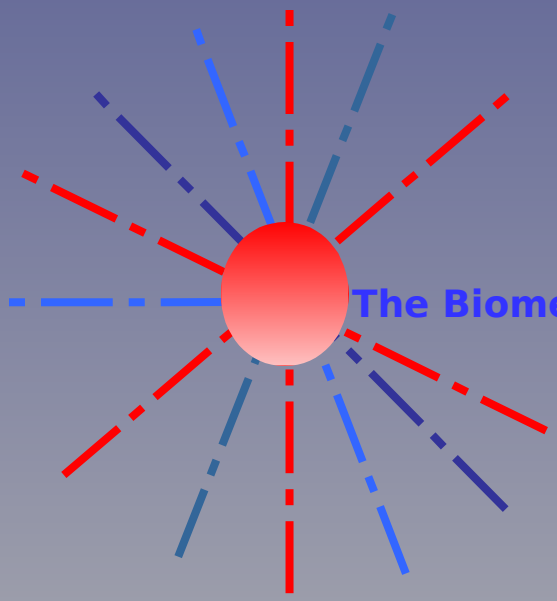
Biometrics – Standards Activities

National Defense Industrial Association
19th Annual Security Symposium
Reston, Virginia
June 19, 2003



Do We Need Biometrics?

- Significant Population Increase
- Fewer Human Safeguards
- E-Commerce, PC Banking
- Increased “Identity Theft”
- Increased Fraud
- Too Many PINS & Passwords
- Need for Improved Physical / Logical Access Control

Biometric Technology Methods

- Fingerprints
- Voice
- Facial
- Iris
- Retina
- Signature Dynamics
- Hand Geometry
- Skin Spectroscopy
- Thermal (Face)
- Vein Patterns (Hand)
- Finger Geometry
- Stride Recognition
- DNA
- Keystroke Dynamics
- Body Odor

How biometrics work

Finger Image

Finger Image + Minutiae

Minutiae

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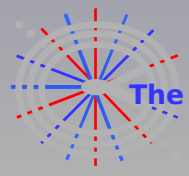
Biometric Issues

- Need for ANSI / ISO standards
- Technology Has Strong “Big Brother” Implications
- Real Concerns are About the Data
- Technology is Not Finite (Voodoo)
- High Profile Cases of Poor Implementation
- Change in Behavior
- Mission Creep
- Fear of the Unknown

Enhanced Border Security Act....

“It requires every foreign visitor desiring entrance into the United States to carry a travel document containing biometric identification -- that would be fingerprints or facial recognition -- that will enable us to use technology to better deny fraudulent entry into America.”

George W. Bush
May 14, 2002



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Biometrics on the Border

- Face and Finger biometrics readily address legacy data issues
- Int'l. Civil Aviation Organization (ICAO) (9303) recommends face, finger or iris methods in travel documents
- November 2002 - GAO Report (GAO-02-952) on the use of Biometrics and Border Security
- January 2003 - NIST Report (303a) supports the use of face and finger biometrics on border

Biometric ID Issues

- Develop Application Profiles
- Provide for Portability to Various Cards
- Support Multiple Storage Mediums
- Maintain Customer Selection of Various Biometric Technologies
- Insure Interoperability

Biometric Civil ID

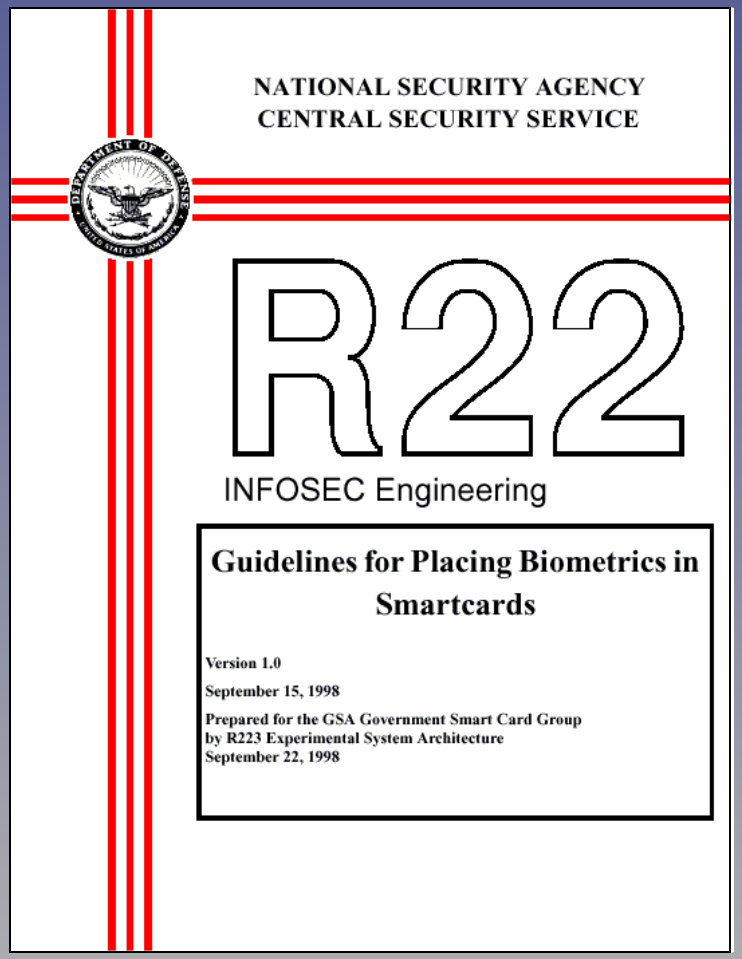
- Improve Enrollment Process
- Establish Minimal Standards
- Utilize Multiple Biometrics
- Mandate Use in Critical Applications
- Permit Opt-in Programs for Less Critical

Government Initiatives

- Common Access Card (CAC) (DOD)
- Transportation Worker Identification Card (TWIC) (TSA)
- US VISIT (Visas) (DHS / DOS)
- Smart Access / Common ID (GSA)

Smart Cards and Biometrics

- NSA “Tokeneer” model
- Addresses CA matrix
- Various Enrollment / Authentication Scenarios
- Construct Similar to X.509 Public Key Certificate
- Adopted for GSA Smart Access / Common ID


NATIONAL SECURITY AGENCY
CENTRAL SECURITY SERVICE

R22

INFOSEC Engineering

Guidelines for Placing Biometrics in Smartcards

Version 1.0

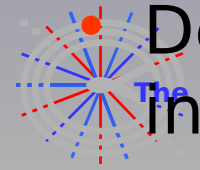
September 15, 1998

Prepared for the GSA Government Smart Card Group
by R223 Experimental System Architecture
September 22, 1998

incits
InterNational Committee for Information Technology Standards
Where IT all begins

M1- Biometrics (US)

- Established in Nov. 2001 by the E-Board of INCITS.
- Ensures a high priority, focused, and comprehensive approach in the US for the rapid development and approval of formal generic biometric standards.
- Accelerates the deployment of significantly better, open systems standard-based security solutions for purposes such as homeland defense and the prevention of ID theft.
- Develops necessary standards to enable interoperability and data interchange between



InterNational Committee for Information Technology Standards

Where IT all begins

M1- Biometrics (US)

- Legislative accelerants:
  - Public Law 107-71 - Aviation and Transportation Security
  - Public Law 107-56 - “The USA Patriot Act”
  - Public Law 107-173 – “Enhanced Border Security Act”
- Goals:
  - Elevate consortia standards (e.g., BioAPI and CBEFF) to national and international voluntary consensus standards.
  - Develop critical biometric standards such as Common File Formats, Application Programming Interfaces, biometric data formats (e.g., templates

InterNational Committee for Information Technology Standards

Where IT all begins

M1- Biometrics (US)

- Meetings:
  - January/May/August/December 2002/ + March/June 2003
- Officers:
  - Fernando Podio, Chairman
  - Cathy Tilton, International Representative
  - Colin Soutar, Vice Chairman
  - Steve Elliot, Secretary
- M1 is the Technical Advisory Group (TAG) to JTC 1 SC37.
- M1 Web Site: www.incits.org/tc_home/m1.htm
- M1 Document Register:

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Current Structure

- Ad-Hoc Group on Biometric Application Profiles
  - Ad-Hoc Group on Biometric Interoperability in Support of the Gov. Smart Card Framework
- Ad-Hoc Group on Biometric Data Interchange Formats
  - Ad-Hoc Group on Biometric Performance Testing, Quality, and Definitions

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Standards Under Development

- Application Profile Verification & Identification of Transportation Workers
- Application Profile Personal Identification for Border Management
- Application Profile Biometric Verification in Point-of-Sale Systems
- Finger Pattern-Based Interchange Format
- Finger Minutiae Format for Data Interchange
- Face Recognition Format for Data Interchange
- Finger Image Interchange Format
- Iris Image Format for Data Interchange

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M1 Biometrics Standards Incubators

www.biometrics.org

www.nist.gov/bcwg

www.nist.gov/cbeff

www.itl.nist.org

www.bioapi.org

www.ibia.org

www.biometricfoundation.org

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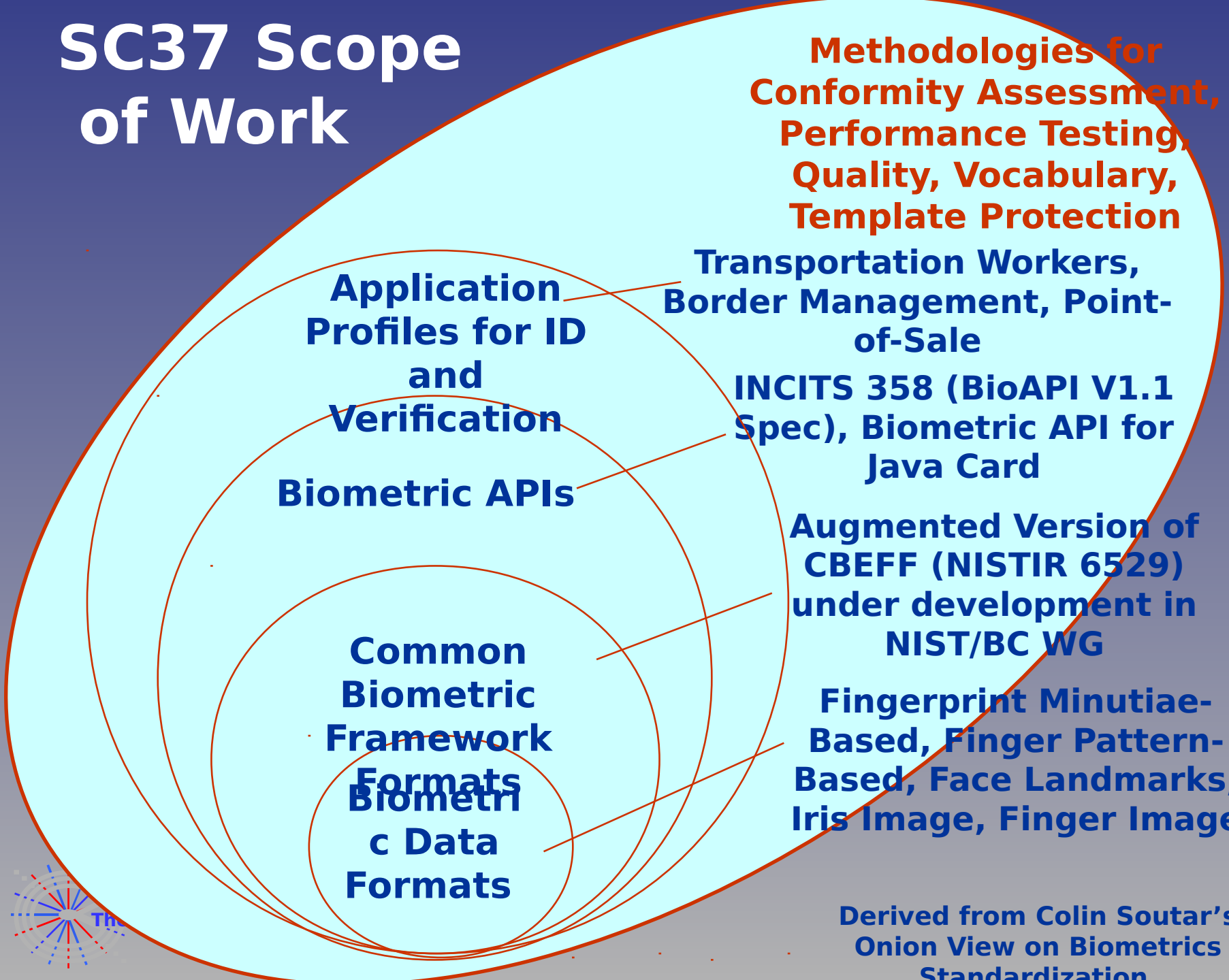
Subcommittee 37 (SC37) Biometrics

- Recently established by JTC 1 (June 2002).
- Scope:

"Standardization of generic biometric technologies to support interoperability and data interchange between applications and systems".

"Generic biometric standards include: common file formats; application programming interfaces (APIs); biometric templates; template protection techniques; and related application / implementation profiles, as well as methodologies for conformity assessment.

SC37 Scope of Work


Application Profiles for ID and Verification
Biometric APIs
Common Biometric Framework Formats
Biometric Data Formats
Methodologies for Conformity Assessment, Performance Testing, Quality, Vocabulary, Template Protection
Transportation Workers, Border Management, Point-of-Sale
INCITS 358 (BioAPI V1.1 Spec), Biometric API for Java Card
Augmented Version of CBEFF (NISTIR 6529) under development in NIST/BC WG
Fingerprint Minutiae-Based, Finger Pattern-Based, Face Landmarks, Iris Image, Finger Image

Derived from Colin Soutar's Onion View on Biometrics Standardization

Subcommittee 37 (SC37) Biometrics

- An international formal standards forum able to:
  - ✓ Meet the need for an international standards environment to coalesce a wide range of interests among IT and biometric industry and users of biometric-based solutions for multiple Identification and Verification applications.
  - ✓ Develop biometric data interchange and interoperability standards for use in multiple applications.
  - ✓ Provide the most efficient approach for the utilization of biometric experts' time.

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Subcommittee 37 (SC37) Biometrics

- Status:
  - ✓ Secretariat: US (ANSI will perform secretariat duties).
  - ✓ Chairman: Fernando Podio, NIST
  - ✓ First SC37 Plenary meeting:
    - December 11 –13, 2002, Orlando, FL, U.S.A.
    - Hosted by the US.
    - Delegates from 18 member countries participate.
- Web site: www.jtc1.org (select SC37).

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- US TAG (INCITS M1) anticipates submitting the following proposals for New Work Items (projects) and their corresponding technical contributions (Working Drafts):
  - ✓ **Application Profile Verification & Identification of Transportation Workers**
  - ✓ **Application Profile Personal identification for Border Management**
  - ✓ **Application Profile Biometric Verification in POS Systems**
  - ✓ **Finger Pattern-Based Interchange Format**
  - ✓ **Finger Minutiae Format for Data Interchange**
  - ✓ **Face Recognition Format for Data Interchange**
  - ✓ **Finger Image Interchange Format**
  - ✓ **Iris Image Format for Data Interchange**

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- Other US technical contributions for SC37 consideration of further processing:
  - ✓ **Standardized definitions of biometric "system" performance measurements and standardized test procedures.**
  - ✓ **Biometric API for Java Cards (TM) – M1 ballot planned upon acceptance and approval of this specification by NIST/BC Biometric WG.**
  - ✓ **Biometric Template Protection and Usage specification as a technical contribution to SC37 for consideration of further processing (upon approval of NIST/BC Biometric WG and M1 ballot).**

Subcommittee 37 (SC37) Biometrics

- US technical contributions to address suitability of the JTC 1 fast track process and US interest in submitting these standards to JTC 1 for fast track processing and placement in JTC 1 SC 37:
  - ✓ **Contribution of ANSI/INCITS 358, BioAPI V1.1 Specification.**
  - ✓ **Contribution of the Augmented Version of CBEFF (Common Biometric Framework Format) NISTIR-6529-A Upon Approval of the NIST/BC Biometric WG.**
- Technical contributions from other SC37 member countries are expected in the near future.

Developing Standards

- ANSI/NSIT 358 BioAPI (US Standard proposed to ISO)
- NISTIR 6529 Common Biometric Exchange File Format (Proposed US and ISO standard)
- Border Crossing AP (scheduled final ballot for ANSI standard in August 2003)
- Transportation Worker Identification Card (TWIC) AP (scheduled final ballot for ANSI in August 2003)

Into the Future...

- Need to ensure that standards activities continue to move full-force to enable widespread adoption
- Need to provide our expertise to customers to help them comply with legislation and standards
- Need to ensure that we do whatever it takes to meet deadlines...

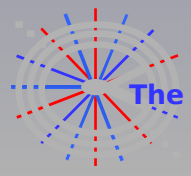
Biometric Industry Efforts

Biometric Consortium
www.biometrics.org

International Biometrics Industry Association
www.ibia.org

The Biometric Foundation
www.biometricfoundation.org

InterNational Committee for Information Technology Standards
www.incits.org



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